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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/686,141
Filing Date: October 15, 2003
Appellant(s): AUFDERHEIDE ET AL.

Robert J. Crawford
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 22 February 2008 appealing from the Office action mailed 13 August 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed. A claims listing was filed with a 12 October 2007 request for reconsideration, but no claim was amended or added.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

5,386,219	Greanias	01-1995
6,583,935	Saif	06-2003

(9) Grounds of Rejection

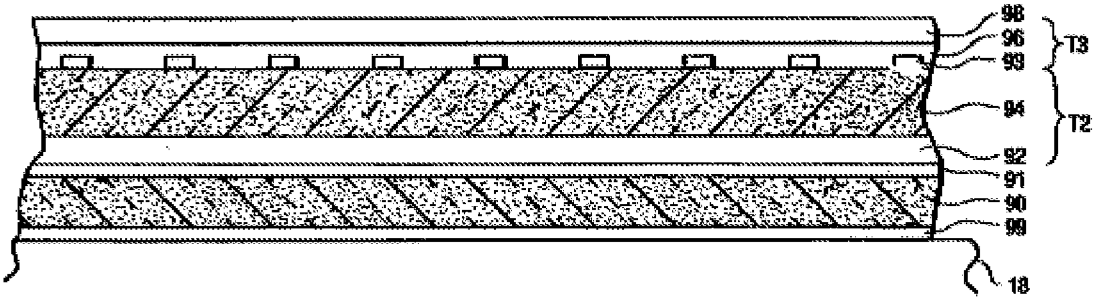
The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

Claims 1-13, 20-24, 26, 28, 32, 34, 25, 37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greanias et al (Greanias) USPAT 5,386,219 in view of Saif et al (Saif) USPAT 6,583,935 B1.

As to claims 1, 21, 32, and 38, Greanias discloses in Figure 5 a touch screen comprising: a PET substrate, 90 [col. 15, lines 40-50, matches Applicant's materials, PET, polyester (plastic), and glass; alternatives of Greanias]; a transparent conductor pattern, 91 [matches Applicant's material, ITO, disposed on the coating, the pattern leaving areas of the coating uncovered [parallel conductor strips, like 93, col. 17, lines 5-50]; and a filler material [92, adhesive, col. 17, lines 48-58 and col. 21, lines 13-25] covering and contacting both the transparent conductor pattern and the areas of the coating uncovered by the transparent conductor pattern [much the same as 96].

FIG. 5



Greanias does not explicitly disclose (1) a coating substantially covering the substrate and (2) said coating has a refractive index that is less than that of the substrate and less than that of the transparent conductor pattern.

Saif teaches the use of a coating [silicon oxide primer layer, col. 7, line 5 through col. 8, line 9] having a refractive index that is less than that of the substrate and less than that of the transparent conductor pattern and good adhesion in order to reduce unwanted reflections when used as a touch panel over a display [Abstract].

Saif is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add of a coating [silicon oxide primer layer, col. 7, line 5 through col. 8, line 9] having a refractive index that is less than that of the substrate and less than that of the transparent conductor pattern and good adhesion in order to reduce unwanted reflections [and thereby increase visible light transmission] when used as a touch panel over a display [Abstract].

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Greanias with the coating [silicon oxide primer layer, col. 7, line 5 through col. 8, line 9] having a refractive index that is less than that of the substrate and less than that of the transparent conductor pattern and good adhesion in order to reduce unwanted reflections when used as a touch panel over a display [Abstract].

Please note that this results in a match for all Applicant's disclosed materials and structure and therefore must match applicant's index of refraction limitations, because applicant's enabling disclosure confirms those index of refraction limitations are met by those materials. Matching structure will match Applicant's performance limitations.

As to claim 2, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the filler material has a refractive index matching or nearly matching the refractive index of the coating [Saif, silicon oxide, col. 7, line 5 through col. 8, line 9].

As to claim 3, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the filler material is the same as the material of the coating [Saif, silicon oxide, col. 7, line 5 through col. 8, line 9].

As to claim 4, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the filler material comprises silicon oxide [Saif, silicon oxide, col. 7, line 5 through col. 8, line 9].

As to claim 5, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the filler material is an adhesive [Saif, silicon oxide, col. 7, line 5 through col. 8, line 9].

As to claim 6, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the substrate comprises plastic [optional polyester, Greanias col. 16, lines 46-50].

As to claim 7, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the substrate comprises polyester [optional polyester, Greanias col. 16, lines 46-50].

As to claim 8, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the substrate includes a hardcoat disposed on a surface opposing the coating [Saif, optional, col. 5, lines 50-60].

As to claim 9, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the coating comprises silicon oxide [Saif, silicon oxide, col. 7, line 5 through col. 8, line 9].

As to claim 10, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the transparent conductor pattern comprises a transparent conductive oxide [Saif, indium tin oxide, col. 7, line 5 through col. 8, line 9].

As to claim 11, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the transparent conductor pattern comprises indium tin oxide [Saif, indium tin oxide, col. 7, line 5 through col. 8, line 9].

As to claim 12, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the transparent conductor pattern comprises a conductive polymer [optional, col. 4, lines 29-37 and col. 10, lines 10-14].

As to claim 13, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the substrate has a refractive index of about 1.6 to 1.7, the transparent conductor pattern has a refractive index of about 1.8 to 2.1, the coating has a refractive index of about 1.4 to 1.5, and the filler material has a refractive index of about 1.4 to 1.8 [known properties of materials used, matches materials claimed by Applicant, Saif, col. 7, line 5 through col. 8, line 9].

As to claim 20, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the coating has a thickness selected to substantially reduce reflections of visible light in areas covered by the transparent conductor pattern [Saif, Abstract and col. 7, line 5 through col. 8, line 9].

As to claim 22, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1, wherein the transparent conductor pattern is configured for connecting to controller electronics adapted to determine touch location from signals generated when a conductive touch implement is capacitively coupled to a portion of the pattern [both Greanias and Saif].

As to claims 23 and 24, Greanias in view of Saif, as combined above, disclose the touch screen of claim 22 being arranged so the touch implement is capacitively coupled to the transparent conductor pattern through the substrate [stylus, cover illustration of Greanias, upper set of conductors] or filler material [lower set of conductors].

As to claims 26 and 34, Greanias in view of Saif, as combined above, disclose the touch screen of claim 1 configured to be disposed over an electronic display so that the display can be viewed through the touch screen [Greanias, Abstract and Figure 5 display 18].

As to claim 28, Greanias in view of Saif, as combined above, disclose a touch screen construction comprising: a PET substrate [Greanias, col. 15, lines 40-50]; an silicon oxide layer covering the PET substrate; an array of parallel ITO bars disposed on the silicon oxide layer; and an optically clear pressure sensitive adhesive disposed over and covering the ITO bars, the optically clear pressure sensitive adhesive having a refractive index in the range of 1.4 to 1.8 inclusive.

As to claim 35, a method for reducing the visibility of a patterned transparent conductor in a touch screen comprising the steps of: coating an undercoat material between a substrate and the patterned transparent conductor so that the undercoat material substantially covers the substrate, the undercoat material having a refractive index that is less than that of the substrate and the patterned transparent conductor, and wherein the patterned transparent conductor leaves areas of the undercoat material exposed; and disposing a filler material over the patterned transparent conductor and exposed areas of the undercoat material, the filler material having a refractive index and thickness selected to reduce interfacial reflections of visible light in areas covered by the patterned transparent conductor would have been obvious in view of the structure rejected above.

As to claim 37, the method of claim 35, further comprising the step of forming the patterned transparent conductor would have been obvious in view of the structure rejected above.

(10) Response to Argument

Appellants' Argument: Examiner has impermissibly used hindsight in finding motivation to combine references whose teaching fail to correspond to each of the elements recited in Appellants' claims.

Examiner's Response: The Saif reference provides motivation in the Abstract and at col. 7, line 5 through col. 8, line 9. Saif teaches improvements of better adhesion and reduction of unwanted reflections. Examiner considers the stated motivations of Saif robust teachings to motivate modification of the primary reference, Greanias, resulting in all claimed elements.

Appellants' Argument: The combination does not teach or suggest a coating covering a substrate, a transparent conductor pattern over the coating, and a filler material covering the transparent conductor pattern and exposed portions of the coating.

Examiner's Response: In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The primary reference, Greanias, discloses the basic touch panel structure, but lacks the index of refraction matched adhesive layer under the conductive lines.

The secondary reference, Saif, teaches adding said index of refraction matched adhesive layer for the robust motivations of better adhesion and reduction of unwanted reflections. Please note this teaching is for the same application, an index of refraction matched adhesive layer under the conductive lines in a touch panel.

Appellants' Argument: Saif does not teach the patterned lines.

Examiner's Response: Primary reference, Greanias discloses the basic structure, including the well-known patterned conductive lines.

Appellants' Argument: Saif derives its anti-reflective properties from the interaction between all the layers in the stack, not from any of the layers taken individually.

Examiner's Response: Reflections take place at each layer interface [property of physics]. Adding an index of refraction matched layer between the conductive line and the underlying substrate will reduce reflections despite any and all other layers [properties of optical physics that are well known in the art], as taught by Saif. One of ordinary skill in the art would know from Saif that the modification of Greanias with the addition of an index of refraction matched adhesive layer of Saif under the conductive lines of Greanias would provide better adhesion along with a reduction of unwanted reflections. One of ordinary skill would know that the reduction of unwanted reflections would be realized at the interface between the substrate and the adhesive layer and at the interface between the adhesive layer and the conductive layer. Please not that these are the layers of Saif that the adhesive layer of Saif is index or refraction matched with.

Appellants' Argument: One of ordinary skill in the art would recognize the anti-reflective stack disclosed by Saif performs its function as a whole.

Examiner's Response: One of ordinary skill in the art would recognize that the index of refraction matched layer between the conductive layer and the underlying substrate will reduce reflections despite any and all other layers [properties of optical physics that are well known in the art], as taught by Saif. One of ordinary skill in the art would know from Saif that the modification of Greanias with the addition of an index of refraction matched adhesive layer of Saif under the conductive lines of Greanias would provide better adhesion along with a reduction of unwanted reflections. One of ordinary skill would know that the reduction of unwanted reflections would be realized at the interface between the substrate and the adhesive layer and at the interface between the adhesive layer and the conductive layer. Please not that these are the layers of Saif that the adhesive layer of Saif is index or refraction matched with.

Appellants' Argument: Examiner's combination would result in patterned adhesive layer.

Examiner's Response: Primary reference, Greanias, teaches a contiguous layer beneath the conductive lines. Greanias teaches patterning only the conductive layer to form said conductive lines. Greanias does NOT disclose patterning the underlying layer.

The secondary reference, Saif, teaches beneficial layer stacks that provide good adhesion to function well when flexed in normal use as a touch panel.

Examiner considers Greanias in view of Saif to render the claimed structure quite obvious to one of ordinary skill in the art.

Examiner also considers these references to also render other reasonable combinations obvious due to the disclosure of broad teachings and multiple embodiments.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Also, patterning takes time and costs money, so lacking a specific teaching with motivation to pattern the transparent adhesive layer, the most obvious choice is to NOT pattern the transparent adhesive layer, thereby saving time and money. There is NOTHING in Saif that ties patterning the conductive layer with patterning the transparent adhesive layer, and the primary reference, Greanias, discloses ONLY patterning the conductive layer. This is NOT hindsight reasoning, it is the most obvious combination given the disclosure of Greanias in view of the teachings of Saif.

Appellants' Argument: Examiner used improper hindsight to choose where in Greanias to insert the adhesive layer of Saif.

Examiner's Response: The index of refraction matched transparent adhesive layer of Saif may be added to improve the adhesion of conductive lines in touch panels as taught by Saif. This teaching is robust to cause one of ordinary skill in the art to use such an adhesive layer under the conductive lines as claimed. Appellants' claims are in comprising format, so other layers are permissible.

Often, the number of layers chosen for a given design are a function of the price range of the product produced. High end products are more robustly designed and produced while low end products make due with less structure at the expense of reduced performance and reduced reliability. A whole range of touch panel products are rendered obvious by Greanais in view of Saif, including the device(s) as claimed.

Examiner has carefully considered all of Appellants' arguments and maintains the Final Rejection is proper.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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